

EFFECTS OF FLIPPED CLASSROOM TECHNOLOGY ON STUDENTS' INTEREST AND ACHIEVEMENT IN ENGLISH LANGUAGE READING COMPREHENSION

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ABSTRACT

The paper examined the effect of Flipped Classroom Technology (FCT) on students' reading comprehension. FCT is a learner-centered instructional technology where the teachers' role and out-of-class contents are reversed in learning. The study adopted the quasi-experimental research design using a sample of 80 Junior Secondary two (JS 2) students. The instrument for data collected was English Language Reading Comprehension Test developed by the researchers and properly validated. The instrument demonstrated good inter-rater reliability index of 0.89 using Kendall coefficient of concordance. Data were analyzed using mean and Analysis of Covariance. The results indicated that FCT had significant ($p < .05$) effects on students' interest and achievement in English language reading comprehension in teaching reading comprehension. This implies that students' readiness, interest, achievement and mastery of reading comprehension would be greatly enhanced when teachers adopt the use of FCT. Based on the findings of the study, it was recommended that secondary school teachers should adopt FCT in teaching reading comprehension.

KEYWORDS: English Language Comprehension, Flipped Classroom Technology & Online Reading Technology

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INTRODUCTION

In this era of information and communication technology, use of online reading technology or flipped classroom technology in teaching students reading comprehension is very effective. In support of the above assertion, significant impacts of information communication technology have been found on students' performance in Mathematics (Onah et al., 2020); in Science (Ugwuanyi et al., 2020 a,b,c; Ugwuanyi & Okeke, 2020; Ugwuanyi et al., 2019a, 2019b) and in Social Science courses (Ejimonye et al., 2020a, 2020b). Bloom (2001) in his revised taxonomy of education stated that through the use of flipped classroom, students can undertake the lower levels of cognitive work (gaining knowledge) on their own. This makes reading more flexible than it would be for the traditional classroom. It also enables students' access to course contents ahead of class. By so doing, the students come to class fully prepared.

In a flipped classroom, students are presented with recorded lectures to view at home after which they will present what they have learnt during the class activities (Bergmann & Sams, 2014). According to Adonu et al. (2021), flipped classroom is a method of teaching and learning which enables the students to watch a video lesson or recorded lectures outside of class. Flipped classroom instructional approach has to do with the assignment of video lectures to the students for homework instead of the traditional classroom instructional lectures (Ugwuanyi et

al., 2019b). Teachers who adopt this technology in teaching reading comprehension look slightly different from the traditional model. This technology in teaching reading comprehension gives the students the opportunity to re-watch all or parts of the video. The application of flipped classroom in teaching and learning makes students perceive reading comprehension as more engaging. Besides, teaching reading comprehension through the application of flipped classroom enhances students' written responses to texts. This can be done by allowing the students watch a visual media presentation on their own before coming to the classroom to make a presentation of what they have learnt.

Previous empirical studies have revealed the effect of flipped classroom on students' learning. Learning using flipped classroom approach was found to be significantly more interesting by students than the conventional approach (Price & Walker, 2021). The use of flipped classroom in teaching and learning yields better learning performance among the students (Ekici, 2021). Flipped classroom application increases the effectiveness of instructional by increasing student engagement in the learning process (Rotellar & Cain, 2016). The implementation of flipped classroom has a significant effect on academic achievement in Science classes (Doğan et al., 2021). The application of flipped classroom strategy improves students' performance and satisfaction in the learning process (Joseph et al., 2021). The use of flipped classroom approach enhances students' academic achievement, more than other classroom models (Polat & Karabatak, 2021). Students' English-speaking performance significantly improved after their exposure to flipped classroom technology (Chang & Lan, 2021).

Statement of Problem

Today students are so oriented to technology that they concentrate more on their smartphones, computers, iPad and other electronic devices than reading from textbooks. Parents do not pay attention to their children or spend quality time monitoring the progress of their children and this has become a sort of worry to many individuals. Some teachers have chosen to adopt the flipped classroom model wherein the students view recorded lessons at home and then use class time for group discussion and teacher's assignments. Trucano (2005) opined that the integration of Information Communication Technology empowers teachers and learners, transforming teaching and learning processes from being highly teacher-dominated to being student-centered. Thus, adopting flipped classroom technology will aim at enhancing the students' reading proficiency to redirect the student's mind to the use of media facilities.

This research therefore sought to determine the effects of flipped classroom technology on students' interest and achievement in reading comprehension. Thus, the researchers formulated the following hypotheses.

H₀₁: There is no significant difference in the mean interest scores of students taught reading comprehension using flipped classroom technology and those not so exposed.

H₀₂: There is no significant difference in the mean achievement scores of students taught reading comprehension using flipped classroom technology and those no so exposed.

METHOD

Research Design

The research adopted pretest, posttest non-equivalent control group quasi-experimental research design. According to Ali (2006), quasi – experimental design enables researchers the opportunity to avoid disruption of normal class lessons by using intact classes. Recently, Odo et al. (2021), Njoku et al. (2020), Offordile et al. (2021), Adene et al. (2021), Adonu et al. (2021), Ejimonye et al. (2020a, b) have adopted this design in their similar studies.

Sample and Sampling Technique

The sample of this study comprised eighty (80) JS 2 students sampled from a population of 835 Junior Secondary School Two (JS 2) students in all the registered public schools in the urban part of Awka South Local Government Area of Anambra State. This sample came from two schools drawn purposively from the 22 public secondary schools study area. The choice of these two sampled schools was because of the location of the schools which is at the center of the area with internet facilities.

Validation and Reliability of the Instrument

The instrument used for data collection was English Language Reading Comprehension Test developed by the researchers. The items of the instrument comprised reading comprehension passages and questions only. The instrument was properly faced and content validated by three experts in test development and construction. The instrument was trial tested on equivalent subjects prior to the actual data collection. The instrument demonstrated a good inter-rater reliability index of 0.89 using Kendall coefficient of concordance.

Experimental Procedure

The experiment spread out in a six weeks span. In the first week, the researchers administered a written pretest on reading comprehension to get the baseline data for the study. For the subsequent weeks, the researchers taught the students in one of the schools (control group) using the traditional method of teaching reading comprehension. On the other hand, they also sent videos of the recorded comprehension passages to the students (experimental group) in the second school via YouTube, WhatsApp, Facebook and Instagram. At the end of the six weeks, the same questions used for the pretest were set for the students in the two schools as a posttest. The data gotten from the pretest and posttest was then be forwarded for statistical analysis.

Method of Data Analysis

Data were analysed using mean and Analysis of Covariance (ANCOVA) in order to answer the research questions and test the hypotheses at 0.05 level of significance. The pretest scores were used as covariate to the posttest scores. The ANCOVA was employed to part out the initial differences between the two experimental groups.

RESULTS

Research Question One: What are the mean interest scores of students taught reading comprehension using flipped classroom technology and those taught using the traditional classroom method.

Table 1: Mean Analysis of Interest Scores of Students of Experimental and Control Groups

Group	Pretest			Posttest		Mean Gain
	n	Mean	SD	Mean	SD	
Flipped classroom method	42	36.67	9.48	50.51	12.63	13.84
Traditional teaching method	38	34.09	10.75	45.97	6.18	11.88

Table 1 shows that the experimental group students had a posttest mean interest score of ($M = 50.51$, $SD = 12.63$), while the control group students had a mean interest score of ($M = 45.97$, $SD = 6.18$) at the post-test.

H₀₁: There is no significant difference in the mean interest scores of students taught reading comprehension using flipped classroom technology and those not so exposed.

Table 2: Analysis of Variance of the Effect of Flipped Classroom Technology on Students' Interest in Reading Comprehension

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	4801.276 ^a	2	2400.638	18.178	.000
Intercept	2963.924	1	2963.924	22.443	.000
Pretest	645.847	1	645.847	4.890	.030
Treatment	3977.174	1	3977.174	30.115	.000
Error	10169.111	77	132.066		
Total	144817.000	80			
Corrected Total	14970.387	79			

a. R Squared = .321 (Adjusted R Squared = .303)

Table 2 revealed that there is a significant effect of flipped classroom technology on students' interest in reading comprehension, $F(1, 77) = 30.115, p = .000$. This led to the rejection of the null hypothesis ($p < .05$).

Research Question Two: What are the mean achievement scores of students taught reading comprehension using flipped classroom technology and those taught without flipped classroom method?

Table 3: Mean Analysis of Achievement Scores of Students of Experimental and Control Groups

Group	Pretest			Posttest		Mean Gain
	n	Mean	SD	Mean	SD	
Flipped classroom method	42	8.15	3.63	25.98	2.59	17.83
Traditional teaching method	38	4.25	1.42	10.50	1.58	6.25

Table 3 shows that the experimental group students had a posttest mean achievement score of ($M = 25.98, SD = 2.59$), while the control group students a posttest mean achievement score of ($M = 10.50, SD = 1.58$).

H₀₂: There is no significant difference in the mean achievement scores of students taught reading comprehension using flipped classroom technology and those no so exposed.

Table 4: Analysis of Variance of the Effect of Flipped Classroom Technology on Students' Achievement in Reading Comprehension

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1530.830 ^a	2	765.415	80.086	.000
Intercept	476.463	1	476.463	49.853	.000
Pretest	.125	1	.125	.013	.909
Treatment	1530.322	1	1530.322	160.119	.000
Error	735.920	77	9.557		
Total	20568.000	80			
Corrected Total	2266.750	79			

a. R Squared = .675 (Adjusted R Squared = .667)

Table4 revealed that there is a significant effect of flipped classroom technology on students' achievement in reading comprehension, $F(1, 77) = 160.119, p = .000$. This led to the rejection of the null hypothesis ($p < .05$).

DISCUSSIONS

This study sought to determine the effects of flipped classroom technology on students' interest and achievement in reading

comprehension. The findings indicated that flipped classroom technology had significant effects on students' interest and achievement in reading comprehension. The efficacy of flipped classroom technology over the traditional teaching method is not surprising because of the interactive nature of flipped classroom technology (Bishop & Verleger, 2013). Flipping our classrooms means speaking the digital language our students understand and infiltrating the video-digital culture of learning in schools.

Buttressing these findings, Baki and Khaled (2016) found that flipped classroom had significant effect on students' achievement in mathematics. Students' English-speaking performance significantly improved after their exposure to flipped classroom technology (Chang & Lan, 2021). The application of flipped classroom strategy improves students' performance and satisfaction in the learning process (Joseph et al., 2021). The use of flipped classroom approach enhances students' academic achievement, more than other classroom models (Polat & Karabatak, 2021). Muhammad and Falalu (2016) revealed that flipped classroom model significantly enhanced students' achievement in integrated science. The use of flipped classroom in teaching and learning yields better learning performance among the students (Ekici, 2021). Similarly, flipped classroom instructional approach significantly enhanced students' achievement in physics (Ugwuanyi et al., 2019b). Adonu et al. (2021) similarly found that flipped classroom instructional approach significantly enhanced students' achievement in Biology. These findings have corroborated the instructional efficacy of flipped classroom technology on students' academic achievement.

Flipped classroom application increases effectiveness of instructional by increasing student engagement in the learning process (Rotellar & Cain, 2016). Learning using flipped classroom approach was found to be significantly more interesting by students than the conventional approach (Price & Walker, 2021). The implementation of flipped classroom has a significant effect on academic achievement in Science classes (Doğan et al., 2021).

CONCLUSIONS AND RECOMMENDATIONS

On the strength of the findings of this research, the following conclusions are hereby drawn. The flipped classroom technology method has facilitative effects on secondary school students' interest and achievement in reading comprehension. Based on the findings of the study, the following recommendations were made:

- It was recommended that secondary school English language teachers should adopt FCT in teaching reading comprehension since the results of the study has shown that the FCT significantly has a positive effect on secondary school students.
- It was also recommended that education authorities should train and empower teachers to use FCT in teaching reading comprehension through conducting seminars, workshops, conferences aimed at creating awareness of the technology and its implementation.

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